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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,649	10/22/2003	Mitsuhiro Suzuki	244212US6	6506

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

TU, JULIA P

ART UNIT PAPER NUMBER

2611

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/26/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/26/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/689,649	Applicant(s) SUZUKI, MITSUHIRO	
	Examiner Julia P. Tu	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/22/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 1, 2, 9, and 10 are objected to because of the following informalities: The examiner suggests to change the following:

In claim 1, change "said frequency" in lines 5-6 to "said predetermined frequency";

In claim 2, change "the predetermined frequency" in lines 4-5 to "a predetermined frequency";

In claim 9, change "the pulse width" in line 3, page 31 to "a pulse width"; also, change "the amplitude values" to "amplitude values";

In claim 10, change "said amplitude energy values" in line 2 to "said amplitude values"

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 7-16, 18-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites "said predetermined carrier wave frequency". There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites "the transmission band" in lines 2-3 and "the baseband pulses" in lines 3-4. There is insufficient antecedent basis for those limitations in the claim.

Claim 11 recites "said preamble section". There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites "said periodic pattern phase" in line 2 and "said pattern" in line 3. There is insufficient antecedent basis for those limitations in the claim.

Claim 13 recites "said pulse position" in line 2, "the received energy" in line 4, and "the pulse position" in line 4". There is insufficient antecedent basis for those limitations in the claim.

Claim 16 recites "said baseband pulses" in lines 2-3 and "said carrier wave" in line 4". There is insufficient antecedent basis for those limitations in the claim.

Art Unit: 2611

Claim 19 recites "said baseband pulses" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 22 recites "said baseband pulses" in line 4 and "said pulse position" in line 6. There is insufficient antecedent basis for those limitations in the claim.

Claim 23 is rejected as incorporating the deficiency of claim 22 upon which it depends.

Claims 16, 19, and 22 provides for the use of the receiving method, a pulse detection method, and a tracking method, respectively, but, since the claim does not set forth any steps involved in the method, it is unclear what method applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced. The claims are generally narrative and indefinite, failing to conform with current U.S. practice.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 6 and 16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 6 recites the transmission method comprised the steps which do not provide a useful, concrete, and tangible result.

Claim 16 recites a receiving method comprised the steps which do not provide a useful, concrete, and tangible result.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larrick, Jr. et al. (US 6,026,125) in view of Muto et al. (4,179,727).

(1) with regard to claim 1:

Larrick discloses a transmitter comprising:

a carrier wave generation means for generating a carrier wave possessing a predetermined frequency (104 and 106 in figure 1);

a pulse generation means for generating pulses at time intervals equal to a fraction $1/n$ of the frequency (n is an integer) (100 and 102 in figure 1, figure 4, and figure 7A, column 11, lines 42-49); and

a modulation means for modulating the baseband pulses with the carrier wave (108 in figure 1; column 6, lines 21-24).

Larrick discloses all of the above subject matters but is silent about baseband pulses. However, rectangular wave generator (generate rectangular pulses (i.e.

Art Unit: 2611

baseband pulses)) is well known in the art as it is evident by Muto (block 1 in figure 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Muto into the teaching of Larrick so as to reduce harmonic components of low order (column 1, line 25) as well as to improve the modulation process.

(2) with regard to claim 2:

Larric discloses a transmitter comprising:

a pulse generation means (100 and 102 in figure 1) for generating pulses with a pulse width that is an integer multiple of one cycle of the predetermined frequency carrier wave; and

a modulation means for modulating the pulses with the carrier wave (108 in figure 1; column 6, lines 21-24).

Larrick discloses all of the above subject matters but is silent about baseband pulses. However, rectangular wave generator (generate rectangular pulses (i.e. baseband pulses)) is well known in the art as it is evident by Muto (block 1 in figure 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Muto into the teaching of Larrick so as to reduce harmonic components of low order (column 1, line 25) as well as to improve the modulation process.

(3) with regard to claim 3:

Larrick further teaches the carrier wave generation means generates a carrier wave possessing a frequency set in the center of the transmission band (column 6, lines 31-33).

(4) with regard to claim 4:

Larrick further teaches the carrier wave generation means generates a carrier wave possessing a frequency set in the center of a band not interfering with communication systems already in use (column 6, lines 31-33, lines 60-61).

(5) with regard to claim 5:

Larrick further teaches the modulation means converts the frequency of the baseband pulses by using the carrier wave (see figure 1).

(6) with regard to claim 6:

As shown in figure 1, Larrick discloses a transmission method comprising the steps of: generating a carrier wave possessing a predetermined frequency (see 104 and 106 in figure 1); and generating pulses at time intervals equal to a fraction $1/n$ of the frequency (n is an integer) (100 and 102 in figure 1, figure 4, and figure 7A, column 11, lines 42-49).

Larrick discloses all of the above subject matters but is silent about baseband pulses. However, rectangular wave generator (generate rectangular pulses (i.e. baseband pulses)) is well known in the art as it is evident by Muto (block 1 in figure 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the

Art Unit: 2611

invention was made to combine the teaching of Muto into the teaching of Larrick so as to reduce harmonic components of low order (column 1, line 25) as well as to improve the modulation process.

(7) with regard to claim 7:

Larrick discloses a transmission method comprising the steps of: generating pulses with a length that is an integer multiple of a predetermined carrier wave frequency (100 and 102 in figure 1, figure 4); and

modulating the pulses by using the carrier wave (108 in figure 1; column 6, lines 21-24).

Larrick discloses all of the above subject matters but is silent about baseband pulses. However, rectangular wave generator (generate rectangular pulses (i.e. baseband pulses)) is well known in the art as it is evident by Muto (block 1 in figure 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Muto into the teaching of Larrick so as to reduce harmonic components of low order (column 1, line 25) as well as to improve the modulation process.

(8) with regard to claim 8:

Larrick discloses a signal transmitted on a carrier wave having a frequency set in the center of the transmission band and obtained by using the carrier wave to modulate the pulses generated at time intervals equal to a fraction $1/n$ of the carrier wave (n is an

Art Unit: 2611

integer) (figure 1, column 6, lines 21-24), wherein a pulse train is detected by quadrature detection using a carrier wave with the same frequency as during transmission (column 11, lines 27-40).

Larrick discloses all of the above subject matters but is silent about baseband pulses. However, rectangular wave generator (generate rectangular pulses (i.e. baseband pulses)) is well known in the art as it is evident by Muto (block 1 in figure 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Muto into the teaching of Larrick so as to reduce harmonic components of low order (column 1, line 25) as well as to improve the modulation process.

Even though Larrick does not explicitly teach a receiver for receiving a transmitted signal. However, one of ordinary skill in the art would have added a receiver to receive a transmitted signal so as to complete a communication system.

(9) with regard to claim 16:

Larrick discloses the transmitted signal comprised of N cycle pulses obtained by carrier-modulating the pulses generated at time intervals equal to a fraction $1/n$ (n is an integer) of the carrier wave with a frequency set in the center of the transmission band (100 and 102 in figure 1, figure 4), wherein a baseband pulse train is detected by quadrature detection using a carrier wave with the same frequency as during transmission (column 11, lines 27-40).

Larrick discloses all of the above subject matters but is silent about baseband pulses. However, rectangular wave generator (generate rectangular pulses (i.e. baseband pulses)) is well known in the art as it is evident by Muto (block 1 in figure 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Muto into the teaching of Larrick so as to reduce harmonic components of low order (column 1, line 25) as well as to improve the modulation process.

Even though Larrick does not explicitly teach a receiver for receiving a transmitted signal. However, one of ordinary skill in the art would have added a receiver to receive a transmitted signal so as to complete a communication system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julia P. Tu whose telephone number is 571-270-1087. The examiner can normally be reached on 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2611

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

J.T.
03/13/2007


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER